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TRANSFORMATION OF THE EVOLUTIONARY ECONOMICS THEORY

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Abstract: The evolutionary economics was separated into an independent direction of research only after the appearance of the works of R. Nelson and S. Winter. The theory they propose is based on similar processes in economics and biology. Thus, the evolutionary economic theory was built on the inconsistency of two processes based on Darwin's theory (variability and selection). When transferring this into the economic reality we create the following model: a competitive struggle is created between the firms as a result of which the most adapted ones "survive" in the process of industrial innovation. At the same time, the evolutionary ideas arose much earlier. In the XVIII century B. Mandeville, A. Smith, and later T. Malthus expressed their ideas that could be attributed to the evolutionary approach today in connection with the assertion of a natural-science worldview that undermined the idea of a divine creation, though with some reservations. The purpose of this article is to trace the change in the ideas of "evolutionary economics" in various technological orders.

Keywords: evolutionary economics, large cycles of conjuncture, technological order.

Introduction

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The definition of the term "evolutionary economics" is ambiguous, there are various terminological differences, connected, first of all, with the ambiguity of the word "evolution". The approaches differ depending on the research methods used, whether they accept Darwinian ideas or not and the views on the necessary policies. The sources and nature of some of these discrepancies will be discussed below.

However, the general emphasis is shifted to the issues of economic changes and transformations in the works of all evolutionary economists. Often, the evolutionary economists do not take institutions or technologies as a reality: they are focused on how they arise and develop. It is also assumed that the complex phenomena usually do not arise during design. Complex phenomena are the result of processes of self-organization and competition as in the nature.

Method

We consider the historical roots of the evolutionary economics, the general ideas of researchers based on a retrospective analysis in this work.

Results

Long waves in the economy or "big cycles of conjuncture" have been being investigated by the economists since the middle of the XIX century. So the cyclicality between two world "economic catastrophes" of 1793 and 1847 discovered by H. Clark, the repeated long periods of growth and fall in the series of prices analyzed by V. Jevons, the theory of cyclical crises of K. Marx, as well as the theory of cyclical crises formulated by A.I. Gelfand were the prerequisites for the creation of the theory of long waves. [1]

The pre-industrial orders are based on the application of muscular, manual, horse energy of human and animals. All inventions of that time concerned the strengthening of muscular strength of human and animals (screw, lever, wheel, reducer, potter's wheel, fur in the smithy, mechanical spinning wheel, hand loom).

An important feature of technological orders is the fact that the origin and theoretical comprehension of any invention occurs in one technological order, and mass use - in the following order. There is an inertia of business and political thinking of business and political elite. A capital

moves into new technological segments of the economy, in which the management is ready to move [2].

The beginning of industrial periods of technological orders coincided with the end of the XVIII - the beginning of the XIX centuries, but the technologies had existed before this period and it became obvious that the scientific community fully realized the cyclical nature of the processes taking place in the economy much later, thus, the only possible option was a new economy (transhumanist civilization).

In the context of this problem, the main attention should be paid to non-interativity of the results of individual actions. Many scientists stressed that the change of technology affected public life, quality of life and welfare in a broader sense. For example, the French economist J. Fourastié gives the leading role to technology as an independent factor, which has a direct impact on welfare. He notes that the technology changes: "life expectancy, time of working capacity, essence of a profession, habits, urbanization, comfort".

The origins of evolutionary ideas in the social sciences originate in the works of Greek philosophers: Heraclitus of Ephesus, Plato and Aristotle. "Struggle is the father of everything and the king of everything," said Heraclitus, and subsequently this principle was successfully applied to the organic nature by Charles Darwin. Plato's works consider the model of "ideal state". In the writings of Aristotle, the evolutionary method is used in the construction of physical, biological and social doctrine, although, it remains on the metaphysical positions to a large extent in this case.

In the Middle Ages, under the primacy of the ideas of religion, the principles of evolution were forgotten and received a new stage in development only in the era of Modern Times in the XVI-XVIII centuries. The greatest

contribution was made here by such philosophers and scientists as N. Copernicus, J. Bruno, I. Newton, G. Galileo, R. Descartes, J. Locke, T. Hobbes, I. Kant, P. Laplace, J. Cuvier, J. Lamarck, C. Lyell et al. For example, Kant and Laplace developed the first cosmogonic hypothesis in the world about the origin of the Solar System, Cuvier and Lamarck created the first major doctrines on the origin of the organic world, Locke and Hobbes proposed a theory of the society development from the "natural", primitive state to the "civil" state, etc.

In the XIX century the idea of an evolutionary economics was widely developed. For the first time the evolutionary principle as the principle of survival of the strongest ones in the struggle for existence was formulated in the theory of the great English economist Thomas R. Malthus (1766-1834). In his work [3], he formulated the following main points: a) the population of our planet is growing exponentially; b) the growth of subsistence means (first of all, food products) with the maximum speed of development grows in arithmetic progression; c) the unlimited population growth represents a threat to the planet and must be limited by the growth of livelihoods; d) to limit the population growth, it is necessary to use the "moral curb" (warning of early marriages, limiting the number of children, etc.) of the lower classes, since they are the ones who contribute the highest percentage to this growth, and if this does not help, then poverty and vices are useful in themselves as they restrain the population growth of the poor class. In this case, competition is considered as a necessary element of development.

In 1859, in the work "The Origin of Species by Natural Selection, or the Preservation of Favored Races in the Struggle for Existence", C. Darwin proposed an evolutionary theory, which in modern terms could be described as an "economic model of competition for the limited resources, in which selection is carried out on an individual level". According to this theory, the evolution is based on the processes of variability (there are individual differences in the population), heredity (there is a correlation between parents and children), selection (some individual forms are more successful than others in the struggle for limited resources and therefore survive better and leave more offspring). [4]

The term "evolutionary economics" was first used by Veblen in 1898 [5]. He confirmed that breeding processes were carried out both in the society and in the nature. Thus, Veblen defines social evolution as "the process of selective adaptation of temperament and habits under the influence of circumstances". Thus, when a certain inclination or point of view is fixed in the society, it begins to form stereotypes of society's thinking that will determine the tendencies and desires of people. Those who do not comply with these behavior patterns will be excluded from the society. The basis of Veblen's economic analysis is undoubtedly the concept of "institution". Veblen identified the institution as "the generally accepted stereotypes of thinking and behavior". In this sense, the institutions reflect the totality of habits inherited from the past and are considered as the main elements that form the tendencies, preferences and values of individuals in Veblen's analysis.

The philosophy of utilitarianism has a decisive influence on the mechanistic approach in the economic science. Many researchers associate the idea of utility calculation with I. Bentham. Equilibrium was understood by the economists as a kind of perfect state with the coordinated individual plans and maximum utility. In this case, the natural-science analogy for the economic theory had to be sought no longer in biology with its theory of evolution, but in mechanics, more precisely, in the theory of gravity, which considered the point of attraction (equilibrium) as a point of free zero energy (i.e., lack of motion).

Schumpeter used the concept of circular equilibrium in his work "Theory of Economic Development". The economic development is a process in which the innovations lead to some changes, so the system is out of balance. Thus, progress is possible only through the process of "creative destruction", which includes both losers and winners. [6]

Another trend in evolutionary thinking emerged within the framework of the Austrian school of economists, in particular, in the works of Karl Menger, Ludwig von Mises and Friedrich Hayek. Menger's theory of the money appearance is often represented as an evolutionary one, as it is an attempt to understand the emergence of institutions. But the evolutionary ideas of the Austrian school were much more widely

developed in the works of Hayek. He introduces the concept of "evolutionary selection" and compares the development of society and evolution in the world of nature. But at the time, he sees Darwinism as one of the stages in a long chain of evolutionary thinking. [10]

The concept of technological orders of S.Yu. Glazyev essentially develops the theory of innovation. In accordance with its interpretation, the technological order is a group of technological sets connected with each other by the same type of technological chains and forming the reproducible integrities. To date, it is possible to single out the life cycles of five successive technological orders in the world of technical and economic development (starting with the industrial revolution in England). At the present time the sixth technological order is being formed. [7]

Transformation of the evolutionary theory of development can be represented in the form of the following scheme.

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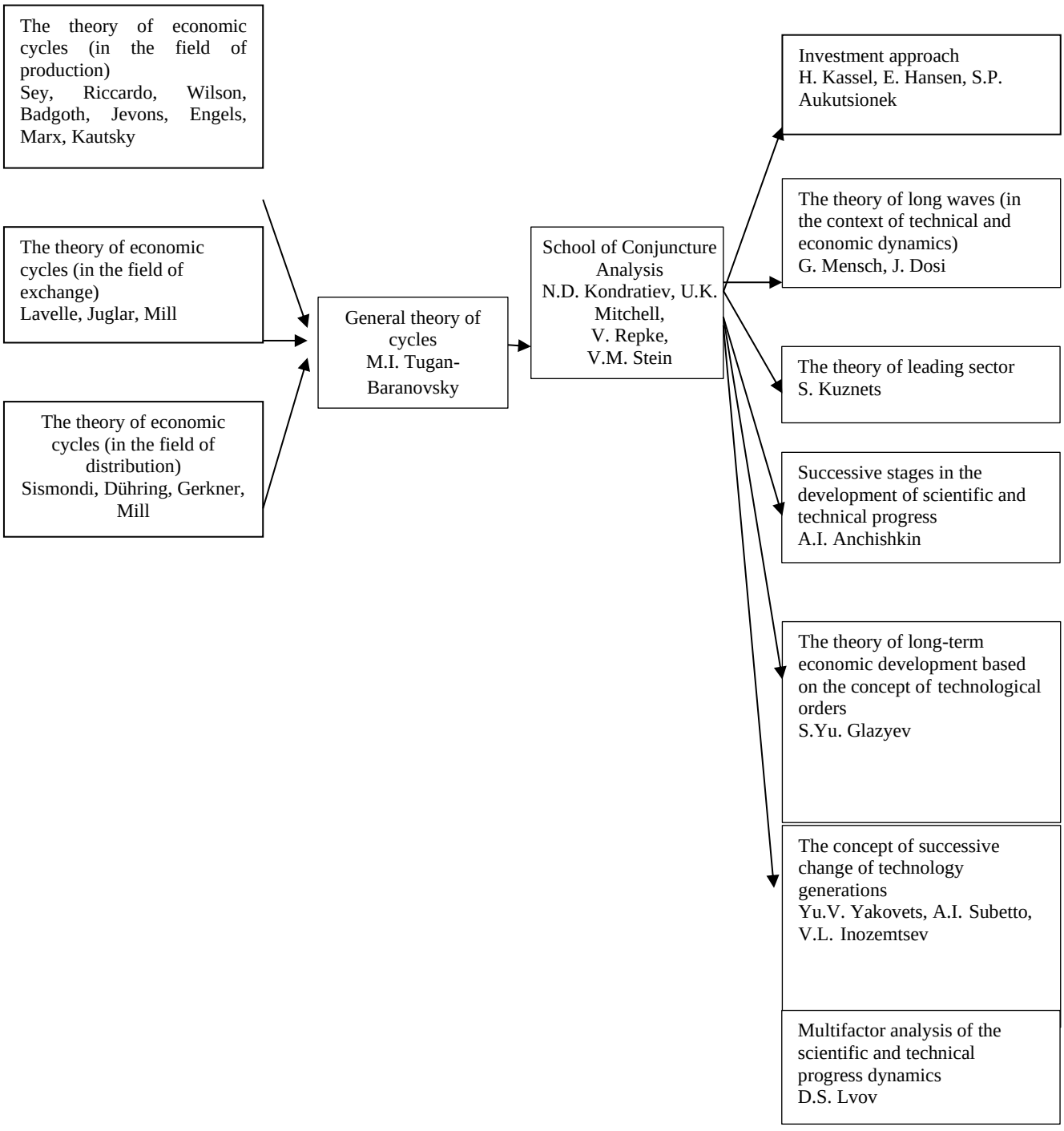

Fig. 1. Transformation of the evolutionary theory of development.

One of the main contributions to the new area of the evolutionary economics was the publication "Evolutionary Theory of Economic Change" by R. Nelson and Sidney G. Winter. [8] These authors focused mainly on the issue of changes in the technology and sub-programs, suggesting a framework for their analysis. If this change is constantly taking place in the economy, then some kind of evolutionary process must work, and it has been suggested that this process has some Darwinian features.

Then we should identify the mechanisms that provide a choice. The authors introduced the term "sustainable change" to emphasize the evolutionary aspect of economic processes and contrast it with the notion of "stable state", popular in the classical economy [8]. Their approach can be compared with the approach of organizational ecology in the sociology. [9]

Conclusions.

Due to the results obtained in the evolutionary economic, it became possible to identify the interconnection of technologies of social and economic relations in the dominant socioeconomic order. The "new economy" represents not only an intra-system changes that emerge from new industries, but in most cases it reflects the system-wide changes in which qualitative transformations affect the structure and all levels of the social system, accompanied by a change in the technological order, social and political organization. The objective conditions for the development of informal institutions and relationships are created in the "new economy", which is due to its increased dynamism, socially multi-aspect nature.

Summary.

Evolutionary economics is a new direction in the economic science, in which the economic processes are viewed as spontaneous, open and irreversible; they are generated by the interaction of external and internal factors and are manifested in a change in the structure of the economy and agents operating in it. Particular attention is paid to the innovation process - emergence, consolidation and distribution of the new; competition as a selection process, as well as problems of information, uncertainty and time. In

general, going beyond the strict frameworks of the economic theory in its orthodox interpretation is apparently connected with the difficulties of studying the problem of development in its broad formulation. It is difficult to say how successful and justified such a trend is, but the approaches to solving a number of problems proposed in the framework of the evolutionary economics are the innovative moments in the process of economic knowledge growth in themselves. Apparently, the success of the evolutionary economics is associated with the possibilities of synthesis of different directions and approaches on a single unified methodological and ideological basis. It seems that the entropy approach has all the chances to become such a unifying base, as, as already mentioned above, the evolution of all living things, including social and economic systems, has a general tendency to entropy reduction.

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References

Richard R. Nelson Economic Development from the Perspective of Evolutionary Economic Theory Oxford Development Studies, Vol. 36, No. 1, March 2008 – pp. 9-21.

Vaganova E.V., Syryamkin V.I., Syryamkin M.V., Yakubovskaya T.V. Identification of the System of Indicators of the State and Dynamics of the Economy within the Dominant and Emerging Technological Order / Problems of Accounting and Finance. Issue No. 4 / 2011. - P. 67-72.

Malthus T.R. An Essay on the Principle of Population // London: J. Johnson, in St. Paul's Church-yard, 1798 – 134 p.

Rahmeyer F. A Neo-Darwinian Foundation of Evolutionary Economics. With an Application to the Theory of the Firm / Universities Augsburg, Institute for Economics, Discussion Paper Series No. 309, 2010 – 33 p.

Veblen, Thorstein B. (1898) 'Why Is Economics Not an Evolutionary Science? Quarterly Journal of Economics, 12(3), July, pp. 373-97.

Richard R. Nelson, Sidney G. Winter An Evolutionary Theory of Economic Change // Harvard University Press, 2009. 454 p.

Glazyev S.Yu. The Modern Theory of Long Waves in the Economy Development // Economics of Modern Russia. 2012. No. 2 (57) P.8-27.

The Evolutionary Theory of Economic Change by Richard Nelson and Sidney G. Winter. Douma, Sytse & Hein Schreuder (2013). "Economic Approaches to Organizations". 5th edition. London: Pearson. 282 p.

Dollimore, D. E. & Hodgson, Four Essays on Economic Evolution: an introduction G. Jan 2014 In: Journal of Evolutionary Economics. 24, 1, p. 1-10.

Hodgson, G. Evolutionary economics 2011 Encyclopedia of Life Support Systems (EOLSS). Unesco 25 p.

Nelson, R.R., Winter, S.G. Evolutionary theorizing in economics / Journal of Economic Perspectives 2002, 16(2), pp. 23-46.

David, P.A. Why are institutions the 'carriers of history'? : Path dependence and the evolution of conventions, organizations and institutions / Structural Change and Economic Dynamics 1994, 5(2), pp. 205-220.

Boschma, R.A., Lambooy, J.G. Evolutionary economics and economic geography / Journal of Evolutionary Economics 1999, 9(4), pp. 411-429.

Hodgson, G.M. Darwinism in economics: From analogy to ontology / Journal of Evolutionary Economics 2002, 12(3), pp. 259-281